

***IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES***

Applicant: Ramon VEGA et al.  
Title: METHOD AND APPARATUS  
OF OPERATING A PRINTER  
Appl. No.: 10/697,010  
Filing Date: 10/31/2003  
Examiner: Richard Z. Zhu  
Art Unit: 2625  
Confirmation 8251  
Number:

**BRIEF ON APPEAL**

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Sir:

This Appeal Brief is being filed under the provisions of 37 C.F.R. § 41.37. This Appeal Brief is being filed together with a transmittal of appeal brief fee sheet in the amount of \$540.00 covering the 37 C.F.R. 41.20(b)(2) appeal fee. If this fee is deemed to be insufficient, authorization is hereby given to charge any deficiency (or credit any balance) to the undersigned deposit account 08-2025.

**REAL PARTY IN INTEREST**

The real party of interest in this Appeal is Hewlett-Packard Development Company, L.P. of Fort Collins, Colorado. This interest is evidenced by an assignment from the inventor to Hewlett-Packard Development Company, L.P., which is recorded on Reel 015081, Frame 0635.

**RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences that will directly affect, be directly affected by, or have a bearing on the present appeal, that are known to Appellant or Appellant's representative.

**STATUS OF CLAIMS**

Claims 1, 2, 6-12, and 16-20 were pending in this application when a Final Office Action was mailed on January 14, 2009. Claims 3, 4, 13, and 14 were canceled in an Amendment and Reply filed on November 6, 2008. Claims 5 and 15 were canceled in an Amendment and Reply filed on August 4, 2008. In the Final Office Action, claims 1, 2, 6-12, and 16-20 were rejected. The Examiner's rejection of claims 1, 2, 6-12, and 16-20 is being appealed.

Claims 1, 2, 6-8, 10-14, 16, and 18-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6,871,934 to Masuyama et al. ("Masuyama") in view of U.S. 5,673,071 to Fuse ("Fuse").<sup>1</sup>

Claims 9 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Masuyama in view of U.S. 6,238,112 to Girones et al. ("Girones") and further in view of U.S. 6,705,697 to Audi et al. ("Audi").

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Masuyama in view of Fuse and further in view of Girones.

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<sup>1</sup> Since the Examiner rejected claim 8 based on different grounds, and since the Examiner did not address claim 8 with regard to this particular rejection, Appellant is assuming that the Examiner meant to recite that claims 6 and 7 were rejected (as opposed to 6-8). Further, since claims 13 and 14 were cancelled in a previous amendment, Appellant is assuming that the Examiner meant to recite that claims 10-12 were rejected (as opposed to 10-14).

**STATUS OF AMENDMENTS**

No claims have been amended in the present application subsequent to the receipt of the Final Office Action dated January 14, 2009.

**SUMMARY OF CLAIMED SUBJECT MATTER**

Claim 1: The present invention, as described in independent claim 1 of the present application, comprises a method of operating a printer of the kind comprising an array of dot printing elements extending in a first direction relative to a page to be printed (*see, e.g.*, page 1, lines 6-64 and page 4, lines 15-19) and which prints at least a part of the page during relative movement between the array and the page in a second direction at an angle to the first direction (*see, e.g.*, page 4, lines 18-21), the array comprising a plurality of groups of elements with redundancy among the elements of the group (*see, e.g.*, page 4, lines 21-23), the method comprising, in respect of at least one of said groups (*see, e.g.*, page 4, line 27), initially commencing printing using a subset of the elements in the group (*see, e.g.*, page 4, lines 25-26) and, during the course of printing, increasing the number of elements available to print in the group (*see, e.g.*, page 4, lines 26-28); wherein each element newly made available to the group is initially made available for use less frequently than the existing element(s) in a subsequent pass of printing (*see, e.g.*, page 5, lines 1-4); and wherein the number of elements in the group available to print is increased as a function of the number of firing pulses sent to the elements of the group (*see, e.g.*, page 4, lines 32-34).

Claim 11: The present invention, as described in independent claim 11 of the present application, comprises an incremental printer comprising a plurality of printing elements grouped into redundant groups (*see, e.g.*, abstract, page 4, lines 15-28, page 6, lines 17-29, Figure 3, and Figure 5) and each group being arranged to print substantially different portions of a given page of a printjob (*see, e.g.*, abstract, page 4, lines 15-28, page 6, lines 17-29, and Figure 3), the

incremental printer being adapted, when commencing a printjob, to control at least one redundant group of printing elements such that only a subset of the printing elements in that group are used to print (*see, e.g.*, abstract, Figure 3, page 4, lines 25-28, and page 6, lines 17-29) the incremental printer being further arranged to subsequently increase the number of printing elements in that group which are used to print (*see, e.g.*, abstract, Figure 3, page 4, lines 25-28, and page 6, lines 17-29), the incremental printer being further arranged, when increasing the number of printing elements in subset of that group, to cause the one or more printing elements newly included in the subset to print for a predetermined duration at a frequency lower than that of one or more printing elements previously included in the subset for a subsequent pass of printing (*see, e.g.*, abstract, Figure 3, page 4, lines 25-28, page 6, line 17 - page 7, line 16); wherein the number of elements in the subset of that group is increased in dependence upon the cumulative number of firing pulses sent to the elements of the group during the printing of the printjob (*see, e.g.*, page 4, lines 32-34).

**GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

The first ground of rejection to be reviewed on appeal is the Examiner's rejection of claims 1, 2, 6-8, 10-14, 16, and 18-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6,871,934 to Masuyama et al. ("Masuyama") in view of U.S. 5,673,071 to Fuse ("Fuse").<sup>1</sup>

The second ground of rejection to be reviewed on appeal is the Examiner's rejection of claims 9 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Masuyama in view of U.S. 6,238,112 to Girones et al. ("Girones") and further in view of U.S. 6,705,697 to Audi et al. ("Audi").

The third ground of rejection to be reviewed on appeal is the Examiner's rejection of claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Masuyama in view of Fuse and further in view of Girones.



## ARGUMENT

### **I. Rejection of Claims 1, 2, 6-8, 10-14, 16, and 18-20 under 35 U.S.C. § 103(a)**

Appellant respectfully requests that the rejection of claims 1, 2, 6-8, 10-14, and 18-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6,871,934 to Masuyama et al. (“Masuyama”) in view of U.S. 5,673,071 to Fuse (“Fuse”) be reversed and withdrawn for at least the reasons set forth below.<sup>1</sup>

#### **A. Neither Masuyama nor Fuse, whether considered alone or in combination, teaches or suggests that each element newly made available to the group is initially made available for use *less frequently than the existing element(s) in a subsequent pass of printing.***

In *In re Rijckaert*, 9 F.3d 1531, 1532, (Fed. Cir. 1993), the Federal Circuit outlined the burden on the PTO as follows:

In rejecting claims under 35 U.S.C. 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992). Only if that burden is met, does the burden of coming forward with evidence or argument shift to the applicant. *Id.* “A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.” *In re Bell*, 991 F.2d 781, 782, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993) (quoting *In re Rinehart*, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (CCPA 1976)). If the examiner fails to establish a *prima facie* case, the rejection is improper and will be overturned. *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some logical reasoning gleaned from the prior art to motivate one of ordinary skill in the art to modify the prior art reference or to combine the reference teachings. Second, there

must be a reasonable expectation of success of achieving the desired goals. Finally, the prior art references when combined must teach all the claim limitations.

In this instance, a prima facie case of obviousness has not been established because Masuyama and Fuse, whether considered alone or in combination, fail to teach or suggest all of the claim elements of independent claims 1 and 11. In particular, Appellant respectfully submits that Masuyama and Fuse fail to disclose that “each element newly made available to the group is initially made available for use less frequently than the existing element(s) in a subsequent pass of printing,” as recited in independent claim 1 and similarly recited in independent claim 11.

Prior to discussing the references cited by the Examiner, Appellant believes that it may be helpful to further explain the above-mentioned claim feature. In doing so, Appellant refers the Board of Patent Appeals and Interferences (“BPAI”) to Figure 3 of the present application. In addition, Appellant refers the BPAI to the corresponding text at page 6, lines 16-33. Here, it is discussed that:

FIG. 3 again shows a row of consecutive dots printed by a redundant group of four nozzles labelled [sic] 1 to 4. In this case, however, at the start of the print job initially only the first nozzle 1 is used for a period of time T1. The period T1 is selected such that at the end of the period T1 the nozzle 1 will be fully operational. Next, during the period T2, the nozzle 2 is made available for use in the group, but only at a frequency less than that of the nozzle 1. In FIG. 3 the nozzle 2 is shown in use at one quarter the frequency of the nozzle 1. The period T 2 is selected such that at the end of the period T 2 the nozzle 2 will be fully operational. Next, for a period T 3 the nozzles 1 and 2 are used with equal frequency.

Now, during the period T4 the nozzle 3 is made available for use in the group, but again at a frequency less than that of the existing nozzles 1 and 2, .... (Emphasis added).

Accordingly, in the present application, printing is initially commenced using a limited number of nozzles (*e.g.*, nozzle #1 in Figure 3). Once nozzle #1 is fully operational, another nozzle (*e.g.*, nozzle #2 in Figure 3) is introduced. However, nozzle #2 is used at a lower frequency than nozzle #1. By using nozzle #2 at a lower frequency than nozzle #1, nozzle #2 can be given a chance to become fully operational without compromising the quality of the print (since fully operational nozzle #1 is still doing the majority of the printing).<sup>2</sup> Accordingly, new nozzles can be periodically introduced to the printing group, but only used at a low frequency until these new nozzles are fully operational. Thus, the present application enables nozzles to become fully operational during printing operations. Appellant respectfully submits that Masuyama and Fuse fail to teach this concept.

Masuyama describes a wasteful method of discharging ink prior to a print operation in order to make a nozzle fully operational. In particular, Masuyama states:

With the above configuration, after the front end area of the print medium has been printed and when the printing is to be continued following the front end area, those nozzles that have been kept out of use so far but begin to be used in the current scan are made ready to eject ink prior to the current scan so that they can eject ink stably from the current scan in which they begin to be used for the first time. (Col. 3, lines 21-27; emphasis added)

Accordingly, Masuyama teaches that printing is commenced with a subset of nozzles, and additional nozzles may be added to the group for printing. Masuyama, however, does not teach or even hint that “each element newly made available to the group is initially made available for use less frequently than the existing element(s) in a subsequent pass of printing,” as recited in

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<sup>2</sup> Appellant notes that a fully operational nozzle is depicted by a full black circle in Figure 3.

independent claim 1 and similarly recited in claim 11. (Emphasis added). Instead, in Masuyama, each element newly made available to the group is initially made available for use at the same frequency as the existing elements in a subsequent pass of printing. One of ordinary skill in the art would understand this point since the newly introduced nozzles in Masuyama are fully operational when they are introduced (due to the preliminary ejection of ink). Thus, there is no need for the newly introduced nozzles to be used at a lower frequency, since the new nozzles are fully operations at introduction to the printing group.

Appellant notes that the Examiner has made various references to Figure 4 in Masuyama as purportedly relating to this claim element. However, Figure 4 in Masuyama merely illustrates the introduction of new nozzles to the printing group, and does not relate to using the newly introduced nozzles at a lower frequency. For example, Figure 4 illustrates that in passes “N-3” to “N”, nozzles 1-4 are being used. In pass “N+1”, nozzles 5-7 are introduced. Prior to the introduction of nozzles 5-7, Masuyama discusses that “nozzles of No. 5-7 are subjected to the preliminary ejection....” (*See*, col. 6, lines 7-8). After this preliminary ejection, nozzles 5-7 are used at the same frequency as nozzles 1-4, since nozzles 5-7 are fully operational when introduced. Thus, Appellant respectfully submits that Figure 4 of Masuyama cannot properly be construed to read on the above-mentioned claim element.

Accordingly, for at least the above reasons Appellant respectfully submits that no portion of Masuyama properly reads on “each element newly made available to the group is initially made available for use less frequently than the existing element(s) in a subsequent pass of printing,” as recited in independent claim 1 and similarly recited in claim 11.

With regard to the Examiner's reliance on Fuse, Appellant respectfully submits that Fuse cannot cure the deficiencies associated with Masuyama because Fuse suffers from the same deficiencies. Namely, Fuse also does not teach that "each element newly made available to the group is initially made available for use less frequently than the existing element(s) in a subsequent pass of printing," as recited in independent claim 1 and similarly recited in claim 11.

Fuse discusses a method of handling clogs in the print heads. (*See, e.g.*, col. 3, lines 22-28 and col. 6, line 61 – col. 7, line 17). In particular, Fuse states:

Particularly immediately before printing and when the head temperature is low or the heads are left unused for a long time, the heads temperature is raised up to an optimum temperature region where the ink discharge characteristics of the heads are relatively stable, otherwise the heads must be operated under poor ink discharge conditions. In other words, the CPU 3 executes the preparatory head drive operation to remove the clogging state of the heads. (Col. 7, lines 37-45; emphasis added).

In addressing the above-mentioned element of claims 1 and 11, the Examiner cited to col. 12, lines 20-38 of Fuse. Here, Fuse states:

Characteristic values efficacious in curing the clogged nozzles were investigated, under the combination of the two control factors, the drive frequency and the head temperature rise that is performed before the clog curing operation. The results were as follows. When the head temperature rise value exceeds a certain value, the number of ink discharging actions may be reduced to zero (0) irrespective of the drive frequency. When the temperature rise value is relatively small, the number of ink discharging actions varies depending on the value of the drive frequency. The fact that when the head drive frequency is somewhat lower than the drive frequency in the normal print drive conditions, the number of ink discharging actions required till the clogged state of the nozzle is removed is reduced, was confirmed. From the experimental results, it is concluded that a preferable drive frequency at the time of the preparatory discharge of ink is a drive frequency F' (kHz) lower

than the drive frequency F (kHz) in the normal print drive conditions. (Emphasis added).

Accordingly, the Examiner cited to a portion of Fuse which discusses the investigation and experimental results in relation to a drive frequency during the preparatory discharge period. The conclusion of the cited portion of text is that the drive frequency during preparatory discharge is to be lower than the drive frequency during the normal print conditions. Appellant respectfully submits that this discussion in Fuse is completely unrelated to “each element newly made available to the group [being] ... initially made available for use less frequently than the existing element(s) in a subsequent pass of printing,” as recited in independent claim 1 and similarly recited in claim 11. In particular, Appellant respectfully submits that Fuse is related to a particular frequency used during a preparatory discharge, whereas claims 1 and 11 are related to using a newly made available element less frequently than existing elements in a subsequent pass of printing. Thus, at a minimum, (i) Fuse does not discuss the frequency of use of a newly made available element; (ii) Fuse does not discuss using one subset of elements in a printing group less frequently than another subset of elements in a printing group; and (iii) Fuse is not related to a subsequent pass of printing (since Fuse is related to a preparatory stage). For at least these reasons, Appellant respectfully submits that Fuse does not properly cure the deficiencies associated with Masuyama.

For at least the above reasons, Appellant respectfully submits that neither Masuyama nor Fuse teaches or suggests all of the features required by independent claims 1 and 11. As such, Appellant respectfully requests that the rejection of claims 1, 2, 6-8, 10-14, and 18-20 under 35 U.S.C. § 103(a) be reversed and withdrawn for at least the above reasons.

- B. Neither Masuyama nor Fuse, whether considered alone or in combination, teaches or suggests that the number of elements in the group available to print is *increased as a function of the number of firing pulses sent to the elements of the group*, as recited in claim 1, or that the number of elements in the subset of that group is *increased in dependence upon the cumulative number of firing pulses sent to the elements of the group during the printing of the printjob*, as recited in claim 11**

The standard for an obvious rejection has been discussed above and is hereby incorporated by reference.

(i) Appellant respectfully submits that the rejection of claims 1, 2, 6-8, 10-14, and 18-20 under 35 U.S.C. § 103(a) as being unpatentable over Masuyama in view of Fuse is improper because neither cited references, whether considered alone or in combination, teaches or suggests that “the number of elements in the group available to print is increased as a function of the number of firing pulses sent to the elements of the group,” as recited in claim 1.

In addressing this claim feature, the Examiner relied on the teachings of Masuyama. In particular, the Examiner stated on page 4 of the Final Office Action that:

Col 5, Rows 1-10 in view of Col 10, Rows 25-35, see also Figs 4 and 8. A pulse PI is applied a nozzle to eject ink from the nozzle and P2 is applied to make a nozzle available for printing. In Fig 4, nozzles with PI applied are marked with "0" and nozzles with P2 applied are marked with "x". As one can observed from Fig 4, the number of elements in the printhead available for printing increases from pass N-3 to N+5 as more and more pulses PI and P2 are applied to respective Nozzles 1-16. For example, in N-3, only four nozzles 1-4 are available since only four PI pulses are applied. But in pass N+5, nozzles 1-16 are available for printing since 16 PI pulses are applied. This reads on the claimed limitation.

Appellant respectfully disagrees and submits that the Examiner is misinterpreting Figure 4. Although the Examiner is correct that the “O” indicates that a particular nozzle is receiving a

pulse to eject ink (*see, e.g.*, col. 10 lines 26-29), there is no discussion whatsoever indicating that printing group size is increased as a function of the total number of “O” pulses. For example, in pass “N+1” there is no indication that Masuyama adds 3 nozzles to the group because of the total number of firing pulses. In other words, the addition of a particular number of nozzles is not dependent on total number of received “O” pulses. For example, in pass “N+2” thru “N+4” the addition of 3 nozzles per pass is not based on the total number of received “O” pulses. Rather, one of ordinary skill in the art would presume (since it is not explicitly stated) that Masuyama adds a set number of nozzles each pass (*e.g.*, 3 per pass as illustrated in Figure 4). Accordingly, since Masuyama makes no indication that the size of the group is increased as a function of the number of firing pulses, Appellant respectfully submits that Masuyama does not properly teach or suggest this claim feature.

With regard to the Examiner’s reliance on Fuse, Appellant respectfully submits that Fuse cannot cure the deficiency associated with Masuyama because Fuse suffers from the same deficiency. As discussed above, Fuse merely discusses a method of handling clogs in print heads. (*See, e.g.*, col. 3, lines 22-28 and col. 6, line 61 – col. 7, line 17). Fuse, however, provides no discussion related to increasing the size of a printing group. As such, Appellant submits that Fuse also fail to teach or suggest the above-mentioned feature.

For at least the above reasons, Appellant respectfully submits that neither Masuyama nor Fuse teaches or suggests all of the features required by independent claim 1. As such, Appellant respectfully requests that the rejection of claims 1, 2, 6-8, 10-14, and 18-20 under 35 U.S.C. § 103(a) be reversed and withdrawn for at least the above reasons.



(ii) Appellant respectfully submits that the rejection of claims 1, 2, 6-8, 10-14, and 18-20 under 35 U.S.C. § 103(a) as being unpatentable over Masuyama in view of Fuse is improper because neither cited references, whether considered alone or in combination, teaches or suggests that “the number of elements in the subset of that group is increased in dependence upon the cumulative number of firing pulses sent to the elements of the group during the printing of the printjob,” as recited in claim 11.

In addressing this claim feature, the Examiner relied on the teachings of Masuyama. In particular, the Examiner made the exact same statement as quoted in Section (i) above. (*See*, page 8 of Final Office Action). However, as discussed above, the Examiner is misinterpreting Figure 4 of Masuyama, insofar as there is no portion in Figure 4 of Masuyama, or anywhere else in the Masuyama reference discusses that the number of elements in the subset of that group is increased in dependence upon the cumulative number of firing pulses sent to the elements of the group during the printing of the printjob. Therefore, for at least the reasons presented above in Section (i), Appellant respectfully submits that neither Masuyama nor Fuse teaches or suggests all of the features required by independent claim 11. As such, Appellant respectfully requests that the rejection of claims 1, 2, 6-8, 10-14, and 18-20 under 35 U.S.C. § 103(a) be reversed and withdrawn for at least the above reasons.

**C. The combination of Masuyama and Fuse is improper.**

As the Supreme Court recently stated, “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (quoting *In Re Kahn*, 441 F.3d 977, 988 (Fed. Cir.

2006) (emphasis added)). In this instance, there is no rationale underpinning to support the legal conclusion of obviousness. With regard to independent claim 1 and 11, the Examiner asserted that it would be obvious to modify Masuyama to include or teach that “each element newly made available to the group is use [sic] less frequency than the existing elements in a subsequent pass of printing.” (See, page 4 of Final Office Action). Appellant respectfully disagrees. Even if Fuse disclosed this feature (which it does not), Appellant respectfully submits that one of ordinary skill in the art would not have been motivated to include such a feature in Masuyama. This is because Masuyama discusses that ink is preliminarily ejected from the nozzles prior to use “so that they can eject ink stably from the current scan in which they begin to be used for the first time.” (See, col. 3, lines 25-27; emphasis added). Therefore, since Masuyama clearly teaches that the nozzles can eject ink stably on their first use, there would be no need to use these nozzles less frequently. The main reason that the present application uses the newly introduced nozzles less frequently is so that the new nozzle has time to become fully operational and eject ink stably. Since Masuyama preliminarily ejects ink to achieve this condition, there is no reason to use the newly introduced nozzles less frequently. Put another way, one of ordinary skill in the art would not use a fully operational nozzle that can stably eject ink less frequently than other nozzles. Doing so would unnecessarily cause the various nozzles to have different usage life spans, without any apparent benefit.

Accordingly, for at least the above reason, Appellant submits that the combination of Masuyama and Fuse is improper. As such, Appellant respectfully requests that the rejection of claims 1, 2, 6-8, 10-14, and 18-20 under 35 U.S.C. § 103(a) be reversed and withdrawn.

**II. Rejection of Claims 9 and 17 under 35 U.S.C. § 103(a)**

Appellant respectfully requests that rejection of claims 9 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Masuyama in view of U.S. 6,238,112 to Girones et al. (“Girones”) and further in view of U.S. 6,705,697 to Audi et al. (“Audi”) be reversed and withdrawn for at least the reasons set forth below.

**A. The rejection of dependent claims 9 and 17 is improper because it fails to rely on the same art as relied on to reject independent claims 1 and 11.**

As discussed above, the Examiner relied on Masuyama in view of Fuse to reject independent claims 1 and 11. However, in rejecting dependent claims 9 and 17, the Examiner relied on Masuyama in combination with Girones and Audi. Since Fuse was relied on to reject the independent claims, and was not relied on to reject the dependent claims, Appellant respectfully submits that the rejection of claims 9 and 17 is improper. As such, Appellant respectfully requests that this rejection be reversed and withdrawn.

**B. The rejection of dependent claims 9 and 17 is improper because it relies on a reference that is not mentioned in the rejection.**

As discussed above, the Examiner relied on Masuyama in combination with Girones and Audi to reject claims 9 and 17. However, there is no discussion in the rejection about what portion of Girones is being relied on as a basis for the rejection. Further, there is no discussion as to why one of ordinary skill in the art would have been motivated to combine Girones with the other cited references. As such, Appellant respectfully submits that the Examiner has not properly set forth a *prima facie* case of obviousness. Therefore, Appellant respectfully requests that this rejection be reversed and withdrawn.

**III. Rejection of Claim 8 under 35 U.S.C. § 103(a)**

Appellant respectfully requests that rejection of claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Masuyama in view of Fuse and further in view of Girones be reversed and withdrawn for at least the reasons set forth below.

Claim 8 recites “wherein faulty printing elements, as identified by a faulty printing element database, are excluded from being made available to the group.” In rejecting this claim, the Examiner correctly recognized that neither Maruyama nor Fuse discloses this feature (*see*, page 11 of Final Office Action). However, the Examiner asserted that this feature is disclosed at col. 19, lines 22-30, col. 17, lines 40-45, and Figure 11, step 1130 of Girones. Appellant respectfully disagrees. At col. 18, line 66 – col. 19, line 30, Girones states:

The process start at step 1100 when the signal to start printing a plot is sent to the printer 20. At this stage a lightweight servicing step 1180 is executed. A lightweight servicing may include conventionally spitting a predetermined number of droplets into the spittoon 108. According to the time the pen rested in the service station capped, an higher predetermined number of droplets may be spitted and a conventional wiping step can be also added. At step 1110 a drop detection process is performed, as described previously described, on the printhead 400. At test 1120 it is verified if the number of nozzles out of the nth percentile, in this embodiment 50, of the drop detection history is below a predetermined Recovery threshold value, here 2 if the printhead pertains to the black pen or 6 if the printhead pertains to the for color pens, or the last drop detection has revealed a current number of nozzles out is smaller than a predetermined End of Life threshold value, here equal to 5 for black pens and equal to 8 for color pens. If the result of test 1140 is YES the process pass to step 1140, wherein the printer prints the plot. If the result is NO, the control passes to test 1130. In 1130 the nozzles which are present in the DDMap and not in the PermMap are counted and summed together. Then if this sum is smaller than a predetermined

Permanent Nozzles Out threshold value the control pass again to step 1140. Step 1130 try to avoid servicing on nozzles that probably will not be recovered by the recovery servicing. In fact if all the nozzles detected as out in the last drop detection were already in the PermMap running a recovery service would probably just reduce the throughput of the printing, or damage other working nozzles and loose some ink. (Emphasis added).

Accordingly, the cited text and corresponding Figure 11 are related to determining which nozzles should be serviced. In contrast, claim 8 is related to excluding faulty printing elements from being made available to the group based on a faulty printing element database. Since Girones does not discuss (i) excluding faulty printing elements from being made available to a group, or (ii) a faulty printing element database, Appellant respectfully submits that Girones does not read on claim 8.

With regard to the Examiner's reliance on col. 17, lines 40-45, Appellant respectfully submits that this portion of Girones also does not read on claim 8 since the cited section only discusses the score required to consider a nozzle to suffer a permanent defect. Again, there is no discussion of (i) excluding faulty printing elements from being made available to the group, or (ii) a faulty printing element database.

Accordingly, for at least the above reasons, Appellant respectfully submits that the rejection of claim 8 under 35 U.S.C. § 103(a) is improper. As such, Appellant respectfully requests that the rejection be reversed and withdrawn.

#### **IV. Conclusion**

For the reasons discussed above, Appellant respectfully submits that all pending claims are in condition for allowance, and respectfully requests that the rejections be reversed, and that the pending claims be allowed to issue.

At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 C.F.R. § 1.25. Additional, charge any fees to Deposit Account 08-2025 under 37 C.F.R. § 1.16 through § 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that my regulate fees.

Respectfully submitted,

Date April 24, 2009

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**CLAIMS APPENDIX**

1. A method of operating a printer of the kind comprising an array of dot printing elements extending in a first direction relative to a page to be printed and which prints at least a part of the page during relative movement between the array and the page in a second direction at an angle to the first direction, the array comprising a plurality of groups of elements with redundancy among the elements of the group, the method comprising, in respect of at least one of said groups, initially commencing printing using a subset of the elements in the group and, during the course of printing, increasing the number of elements available to print in the group; wherein each element newly made available to the group is initially made available for use less frequently than the existing element(s) in a subsequent pass of printing; and wherein the number of elements in the group available to print is increased as a function of the number of firing pulses sent to the elements of the group.

2. The method claimed in claim 1, wherein each redundant group is arranged to print a respective row of dots in the second direction.

6. The method claimed in claim 1, wherein at least one element in the group is serviced prior to printing so that it is at least partially operational at the commencement of the print job, printing being commenced using the said at least one serviced element and one non-serviced element, the non-serviced element initially being made available for use less frequently than the said at least one serviced element.

7. The method claimed in claim 6, comprising, prior to commencing printing, identifying portions of the array of printing elements which will be needed at least for a first pass of the array relative to the first page of the print job, and servicing printing elements according to the array portions so identified whereby one or more printing elements outside the identified array portions are not serviced.

8. The method claimed in claim 1, wherein faulty printing elements, as identified by a faulty printing element database, are excluded from being made available to the group.

9. The method claimed in claim 1, wherein the array of printing elements extends substantially fully across the page in the first direction.

10. The method claimed in claim 1, wherein the printer is an inkjet printer and the dot printing elements are inkjet nozzles.

11. An incremental printer comprising a plurality of printing elements grouped into redundant groups, each group being arranged to print substantially different portions of a given page of a printjob, the incremental printer being adapted, when commencing a printjob, to control at least one redundant group of printing elements such that only a subset of the printing elements in that group are used to print, the incremental printer being further arranged to subsequently increase the number of printing elements in that group which are used to print;

the incremental printer being further arranged, when increasing the number of printing elements in subset of that group, to cause the one or more printing elements newly included in the subset to print for a predetermined duration at a frequency lower than that of one or more printing elements previously included in the subset for a subsequent pass of printing;

wherein the number of elements in the subset of that group is increased in dependence upon the cumulative number of firing pulses sent to the elements of the group during the printing of the printjob.

12. An incremental printer according to claim 11, wherein each redundant group is arranged to print a row or column of image data.

16. An incremental printer according to claim 11, wherein at least one element in that group is serviced prior to commencing the printjob.

17. An incremental printer according to claim 11, wherein the plurality of incremental printing elements form a page wide or a page high array.



18. An incremental printer according to claim 11, wherein the printer is an inkjet printer and the printing elements are inkjet nozzles.
19. A printer control circuit adapted to control a printer to perform the method claimed in claim 1.
20. A computer readable medium containing program instruction which, when executed by a data processing device, control a printer to perform the method claimed in claim 1.

**EVIDENCE APPENDIX**

None.

**RELATED PROCEEDINGS APPENDIX**

None.